

# इंटरनेट

# मानक

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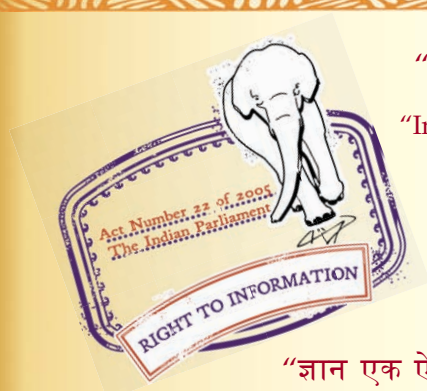
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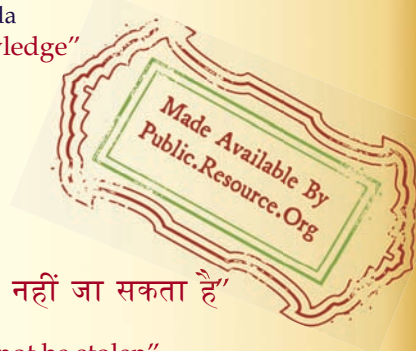
IS 11455-3 (2001): Outline Dimensions of Transformers and Inductors for Use in Telecommunication and Electronic Equipment, Part 3: Transformers and Inductors Using YUI-1 Laminations [LITD 5: Semiconductor and Other Electronic Components and Devices]



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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”







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भारतीय मानक

दूरसंचार और इलेक्ट्रॉनिकी उपस्कर में प्रयुक्त ट्रांसफार्मरों  
और प्रेरकों के बाहरी आयाम

भाग 3 YUI-1 लेमिनेशन प्रयुक्त ट्रांसफार्मर और प्रेरक

( पहला पुनरीक्षण )

*Indian Standard*

OUTLINE DIMENSIONS OF TRANSFORMERS AND  
INDUCTORS FOR USE IN TELECOMMUNICATION  
AND ELECTRONIC EQUIPMENT

PART 3 TRANSFORMERS AND INDUCTORS USING YUI-1 LAMINATIONS

( *First Revision* )

ICS 29.100.10;29.180

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**BUREAU OF INDIAN STANDARDS**  
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NEW DELHI 110002



NATIONAL FOREWORD

This Indian Standard ( First Revision ) which is identical with IEC 852-3 ( 1992 ) 'Outline dimensions of transformers and inductors for use in telecommunication and electronic equipment— Part 3 : Transformers and inductors using YUI-1 laminations' issued by the International Electrotechnical Commission ( IEC ) was adopted by the Bureau of Indian Standards on the recommendations of the Magnetic Components and Ferrite Materials Sectional Committee and approval of the Electronics and Telecommunication Division Council.

This standard was first published in 1988 and was based on IEC Doc : 51 ( CO ) 268 'Draft specification for outline dimensions of transformers and inductors for use in electronics and telecommunication equipment — Part 3 : Transformers and inductors using YUI-1 laminations'. However, this IEC document has since been published as IEC 852-3 ( 1992 ) with technical modifications in the dimensions of 'fixing holes (G)' and 'height (C)'. The dimensions of 'fixing screws (M)' have also been included in the published IEC Standard. In view of the technical modifications at the international level, this Indian Standard is being revised to align it with the latest international practices.

The text of the IEC has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

CROSS REFERENCES

In the adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
IEC 65 ( 1985 ) Safety requirements for mains operated electronic and related apparatus for household and similar general use	IS 616 :1986 Safety requirements for mains operated electronic and related apparatus for household and similar general use	Identical
IEC 740 ( 1982 ) Laminations for transformers and inductors for use in telecommunication and electronic equipment	<div><div>a) IS 11794 ( Part 1 ) : 1986 Laminations for transformers and inductors for use in telecommunication and electronic equipment: Part 1 General requirements and tests</div><div>b) IS 11794 ( Part 2/Sec 1 to 7 ) : 1986 Laminations for transformers and inductors for use in telecommunication and electronic equipment: Part 2 Preferred ranges of laminations</div></div>	Technically equivalent
ISO 3 : 1973 Preferred numbers — Series of preferred numbers	IS 1076 ( Part 1 ) : 1985 Preferred numbers: Part 1 Series of preferred numbers	Identical

( Continued on third cover )



## Indian Standard

# OUTLINE DIMENSIONS OF TRANSFORMERS AND INDUCTORS FOR USE IN TELECOMMUNICATION AND ELECTRONIC EQUIPMENT

## PART 3 TRANSFORMERS AND INDUCTORS USING YUI-1 LAMINATIONS ( First Revision )

### 1 Scope

This part of IEC 852 specifies the outline dimensions of transformers and inductors, using U and I laminations as specified below, built for the most commonly used forms of mounting style, namely vertical mounting and level mounting. The level mounting style is subdivided into bracket mounting and pillar mounting variants.

#### 1.1 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 852. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 852 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 65: 1985, *Safety requirements for mains operated electronic and related apparatus for household and similar general use.*

IEC 740: 1982, *Laminations for transformers and inductors for use in telecommunication and electronic equipment.*

ISO 3: 1973, *Preferred numbers - Series of preferred numbers.*

ISO 273: 1979, *Fasteners - Clearance holes for bolts and screws.*

ISO 286-1: 1988, *ISO system of limits and fits - Part 1: Bases of tolerances, deviations and fits.*

ISO 965-1: 1980, *ISO general purpose metric screw threads - Tolerances - Part 1: Principles and basic data.*

ISO 965-2: 1980, *ISO general purpose metric screw threads - Tolerances - Part 2: Limits of sizes for general purpose bolt and nut threads - Medium quality.*

### 2 Laminations

For the purpose of this part of IEC 852, the laminations shall conform to the dimensions of IEC type YUI - range 1 as prescribed in table XV of IEC 740.



### 3 General requirements

#### 3.1 Mounting styles

The mounting styles specified below are based upon proven methods of assembly, both with metric type YUI laminations and with similar types having dimensions based upon the inch.

In particular, on both the assembly styles considered, the dimensions specified permit the compliance, in respect of creepage and clearance distances, with IEC 65 by means of 'safety type' coil formers.

The data provided in clauses 4 and 5 give the main dimensions of:

- length, width, height (A, B, C);
- positioning of mounting holes ( $D_1$ ,  $D_2$ ,  $D_3$ );
- fixing hole size (G);
- fixing screw size (M);
- stack height (S).

Dimensions A, B and C include an allowance for varnishing.

Fixing screws shall be ISO metric screws having screw threads which are metric coarse and of medium fit in accordance with ISO 965. Associated tapped holes shall comply with a 6 H class of fit in accordance with ISO 965.

Fixing holes are clearance holes having diameters taken from the medium series of ISO 273, and screws of corresponding size shall be used for mounting.

Where slotted fixing holes are used, their width shall equal the stated value of G, and their length shall not exceed 1,5 G.

All the listed dimensions in this part are in millimetres.

#### 3.2 Stack heights

A range of stack heights is specified, which allows continuous variations of power rating, although the square stack is preferred. The increment of stack height follows the R10 series\* of preferred numbers as a multiple of the width of the limbs of the lamination. The stack height is shown as nominal and is open to small variations within the proposed outline dimensions and fixing centres. A suffix letter is used to designate the appropriate stack size as shown below:

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\* As defined in ISO 3.



*Suffix letter                  Multiple of limb width of lamination*

a	0,50
b	0,63
c	0,80
d	1,00 (i.e. square stack)
e	1,25
f	1,60
g	2,00

The lamination designation followed by the appropriate suffix letter is used to designate the core.

**3.3 Tolerances**

The dimensions, except where indicated as maximum or nominal, shall have tolerances in accordance with the requirements of ISO 286-1.

NOTE - The appropriate tolerance is shown at the head of each column of dimensions in tables 1 and 2.

**4 Vertical mounting style**

The dimensions for the vertical mounting style shall be as given in table 1, corresponding to cores using square stacks assembled from laminations YUI 1-10 to YUI 1-80, in accordance with the outline drawing of figure 1.

If stack heights other than the preferred square stack are used, these shall follow the R10 series given in 3.2, and the core designation shall use the suffix letter given therein. In this case the appropriate values of  $C$  and  $D_3$  are obtained by increasing or decreasing the values in table 1 by the same amount as the stack height  $S$  is changed.

**5 Level mounting style**

**5.1 General**

The dimensions for the level mounting style shall be as given in tables 2 and 3, corresponding to cores using square stacks assembled from laminations YUI 1-10 to YUI 1-80, in accordance with the outline drawings of figures 2 and 3, respectively, according to whether the bracket or pillar mounting version is required.

If stack heights other than the preferred stack height are used, these shall follow the R10 series given in 3.2, and the core designation shall use the suffix letter given therein. In this case the appropriate values of  $C$  are obtained by increasing or decreasing the values in tables 2 and 3 by the same amount as the stack height  $S$  is changed.



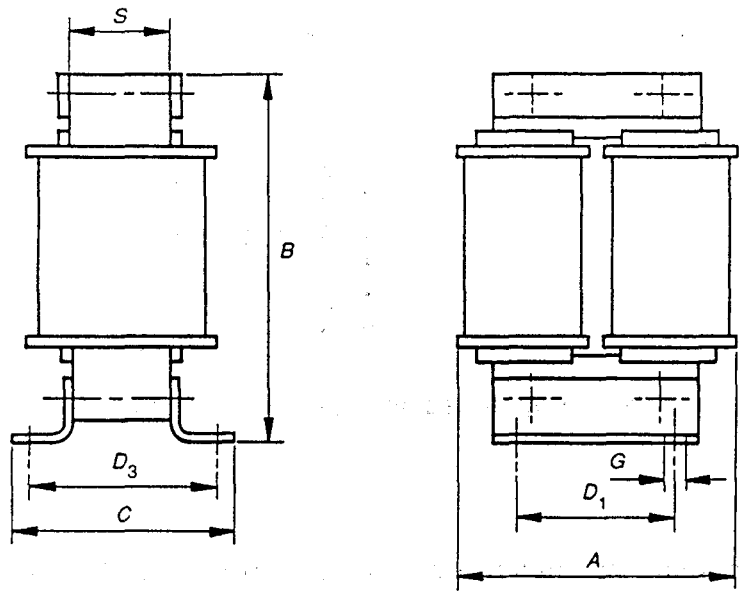


Figure 1 – Vertical mounting style for transformers and inductors using laminations YUI 1-10 to YUI 1-80

Table 1 – Dimensions for vertical mounting style – square stack

Designation	$S_{nom}$ mm	$A_{max}$ mm	$B_{max}$ mm	$C_{max}$ mm	$D_1$ ± IT 12 mm	$D_3^*$ ± IT 12 mm	$G^{**}$ ± J <sub>s</sub> 14 mm
YUI 1-10 d	10	41,5	60	34	25	25	3,4
YUI 1-13 d	13	53,5	75	37	32,5	28	3,4
YUI 1-16 d	16	65,5	90	40	40	31	3,4
YUI 1-20 d	20	82	110	52	50	40	4,5
YUI 1-25 d	25	102	135	57	62,5	45	4,5
YUI 1-30 d	30	122,5	160	70	75	55	5,5
YUI 1-34 d	34	138,5	180	74	85	59	5,5
YUI 1-38 d	38	155	200	86	95	73	6,6
YUI 1-44 d	44	179	230	92	110	79	6,6
YUI 1-50 d	50	204	260	114	125	90	9
YUI 1-56 d	56	228	295	123,3	140	96	9
YUI 1-60 d	60	244	315	132	150	100	9
YUI 1-70 d	70	285	365	154	175	120	11
YUI 1-80 d	80	325	415	176	200	130	11

\* This dimension may correspond to the centres of fixing slots

\*\*See 3.1.



5.2 Bracket mounting

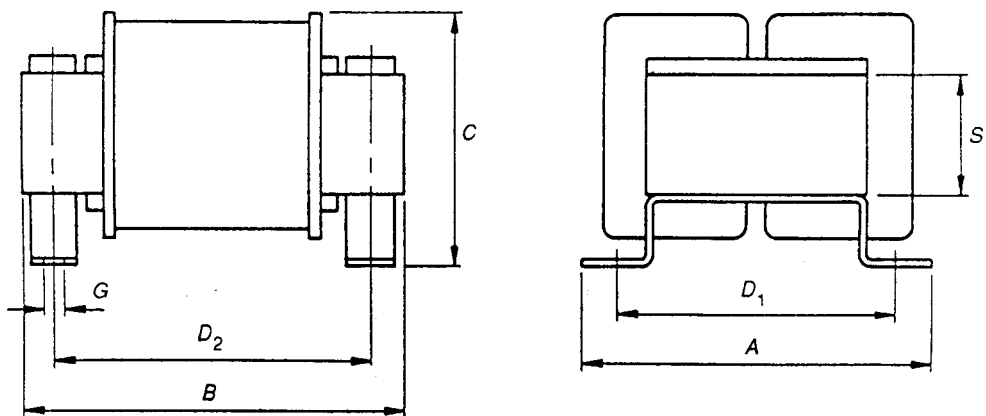


Figure 2 – Level mounting style for transformers and inductors  
using laminations YUI 1-10 to YUI 1-80 – bracket mounting

Table 2 – Dimensions for level mounting style – square stack –  
bracket mounting

Designation	$S_{nom}$ mm	$A_{max}$ mm	$B_{max}$ mm	$C_{max}$ mm	$D_2$ $\pm IT 12$ mm	$D_1$ $\pm IT 12$ mm	$G$ $\pm J_s 14$ mm
YUI 1-10 d	10	54	51,5	23	40	45	3,4
YUI 1-13 d	13	63	66,5	30	52	54	3,4
YUI 1-16 d	16	72	81,5	37	64	63	3,4
YUI 1-20 d	20	92	102	46	80	80	4,5
YUI 1-25 d	25	107	127	58	100	95	4,5
YUI 1-30 d	30	130	152,5	69	120	115	5,5
YUI 1-34 d	34	142	172,5	78	136	127	5,5
YUI 1-38 d	38	162	193	84	152	144	6,6
YUI 1-44 d	44	180	223	97	176	162	6,6
YUI 1-50 d	50	214	254	110	200	190	9
YUI 1-56 d	56	228	284	123	224	208	9
YUI 1-60 d	60	244	304	132	240	220	9
YUI 1-70 d	70	285	355	154	280	260	11
YUI 1-80 d	80	325	405	176	320	290	11



5.3 Pillar mounting

Mounting pillars shall be dimensioned so that they do not effect the overall height C.

NOTE - The pillars may be supplied either tapped, or drilled with suitable clearance holes, corresponding to the metric screw whose size is given in table 3. Where tapped holes (see 3.1) are used, as indicated in figure 3, it is good practice to ensure that the depth of full thread is not less than the diameter of the fixing screw.

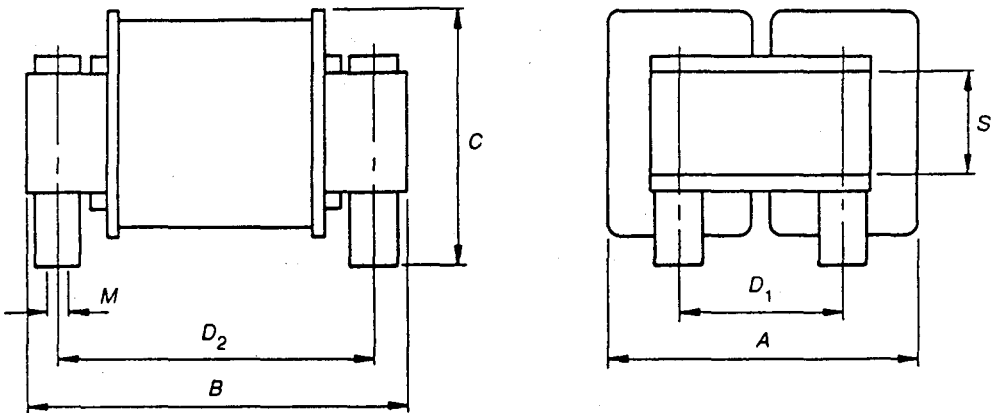


Figure 3 – Level mounting style for transformers and inductors  
using laminations YUI 1-10 to YUI 1-80 – pillar mounting

Table 3 – Dimensions for level mounting style – square stack  
pillar mounting

Designation	$S_{nom}$ mm	$A_{max}$ mm	$B_{max}$ mm	$C_{max}$ mm	$D_2$ $\pm IT 12$ mm	$D_1$ $\pm IT 12$ mm	M Fixing screw size
YUI 1-10 d	10	41,5	51,5	23	40	20	M3
YUI 1-13 d	13	53,5	66,5	30	52	26	M3
YUI 1-16 d	16	65,5	81,5	37	64	32	M3
YUI 1-20 d	20	82	102	46	80	40	M4
YUI 1-25 d	25	102	127	58	100	50	M4
YUI 1-30 d	30	122,5	152,5	69	120	60	M5
YUI 1-34 d	34	138,5	172,5	78	136	68	M5
YUI 1-38 d	38	155	193	84	152	76	M6
YUI 1-44 d	44	179	223	97	176	88	M6
YUI 1-50 d	50	204	254	110	200	100	M8
YUI 1-56 d	56	228	284	123	224	112	M8
YUI 1-60 d	60	244	304	132	240	120	M8
YUI 1-70 d	70	285	355	154	280	140	M10
YUI 1-80 d	80	325	405	176	320	160	M10



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<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 273 : 1979 Fasteners — Clearance holes for bolts and screws	IS 1821 : 1987 Dimensions for clearance holes for bolts and screws	Identical
ISO 286-1 : 1988 ISO system of limits and fits — Part 1 : Bases of tolerances, deviations and fits	IS 919 ( Part 1 ) : 1993 ISO system of limits and fits: Part 1 Bases of tolerances, deviations and fits	do
ISO 965-1 : 1980 ISO general purpose metric screw threads — Tolerances — Part 1 : Principles and basic data ( since revised in 1998 )	IS 14962 ( Part 1 ) : 2001 General purpose metric screw threads — Tolerances: Part 1 Principles and basic data	Identical to ISO 965-1 : 1998
ISO 965-2 : 1980 ISO general purpose metric screw threads — Tolerances — Part 2 : Limits of sizes for general purpose bolt and nut threads — Medium quality ( since revised in 1998 )	IS 14962 ( Part 2 ) : 2001 General purpose metric screw threads — Tolerances: Part 2 Limits of sizes for general purpose bolt and nut threads — Medium quality	Identical to ISO 965-2 : 1998

Only the English language text of the International Standard has been retained while adopting it in this Indian Standard.



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### Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : No. LTD 13 ( 1876 ).

#### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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